

TITLE OF THE INVENTION

OVEN

CROSS-REFERENCE TO RELATED APPLICATIONS

**[0001]** This application claims the benefit of Korean Patent Application No. 2003-028987, filed on May 07, 2003, in the Korean Intellectual Property Office, the disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

**[0002]** An aspect of the present invention relates to an oven, and more particularly to an oven improved in a combining structure of a transparent window.

2. Description of the Related Art

**[0003]** The oven refers to an apparatus such as an electric oven or a bread maker.

**[0004]** The oven comprises a main body having an oven compartment to put foods therein; a door combined with the main body to open and close the oven compartment; and a heating means to heat foods.

**[0005]** The door of the conventional oven comprises an inner cover facing the oven compartment having an opening to show the inside of the oven compartment; and a transparent window provided in the opening.

**[0006]** The transparent window is made of materials such as glass, so that the inside of the oven compartment can be shown.

**[0007]** The process of providing the transparent window in the inner cover is to be described as follows: First, the transparent window is placed in the opening of the inner cover. Then, the transparent window is fixed by using a fixing means such as a jig so as to prevent the transparent window from being detached from the opening. Thereafter, liquid sealant is applied to the edges of the transparent window and the opening so that the transparent window is adhered to the opening.

**[0008]** However, in the conventional oven, the fixing means such as a jig and liquid sealant have to be used for fixing the transparent window to the opening of the inner cover. The liquid sealant requires a long time to solidify, which may create a longer assembly process resulting in a reduction of productivity.

#### SUMMARY OF THE INVENTION

**[0009]** Accordingly, it is an aspect of the present invention to provide to an oven improved in a combining structure of a transparent window.

**[0010]** Additional aspects and advantages of the invention will be set forth in part in the description which follows and, in part, will be obvious from the description, or may be learned by practice of the invention.

**[0011]** The foregoing and/or other aspects of the present invention are achieved by providing an oven with a main body having an oven compartment, and a door in contact with the main body to open and close the main body, the door comprising an inner cover facing the oven compartment and having an opening to show the interior of the oven compartment; a transparent window provided in the opening of the inner cover; and a supporting member supporting the transparent window against the inner cover, wherein a window accommodating part is extended toward the inside of the oven compartment from the periphery of the opening for accommodating the transparent window.

**[0012]** According to an aspect of the invention, the window accommodating part is bent into an "L" shape.

**[0013]** According to an aspect of the invention, the supporting member comprises a plate part, combined with the inner cover, and having an opening part corresponding to the transparent window; and a supporter extended from the periphery of the opening part of the plate part toward the inside of the oven compartment and which supports the transparent window against the window accommodating part of the inner cover.

**[0014]** According to another aspect of the invention, the supporter gives a predetermined pressure to the periphery of the transparent window.

[0015] According to another aspect of the invention, heat-resisting elastic materials are provided between the window accommodating part and the transparent window; and between the supporter and the transparent window.

[0016] According to another aspect of the invention, the door further comprises an outer cover which forms an outward appearance of the door outside of the supporting member and includes an observation window placed corresponding to the transparent window.

[0017] According to an additional aspect of the invention, the supporting member is combined with the inner cover and the outer cover, respectively.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0018] These together with other aspects and advantages of the present invention will become apparent and more readily appreciated from the following description of the preferred embodiments, taken in conjunction with the accompanying drawings of which:

FIG. 1 is a perspective view of an oven with a door being opened, according to an embodiment of the present invention;

FIG. 2 is an exploded perspective view of the door of the oven shown in FIG. 1;

FIG. 3 is a sectional view of the door of the oven of the present invention, taken along section III-III in FIG. 2.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0019] Reference will now be made in detail to the present preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings, wherein like reference numerals refer to like elements throughout. The embodiments are described below in order to explain the present invention by referring to the figures.

[0020] In FIG. 1, an oven according to an embodiment of the present invention comprises a main body 1 including an oven compartment 3 and a component compartment (not shown); a door 10 provided in the front of the main body 1 to open and close a front opening of the oven compartment 3 rotatably; an operation display panel 5 provided at a side of the front of the main body 1 to display an operation state of the main body 1; a pair of kneading drums 9 disposed in parallel to each other in upper and lower parts of the oven compartment 3 and winds opposite ends of a mixing bag (not shown) filled with raw materials for bread in clockwise and counterclockwise directions; and a baking tray 7 put in the oven compartment 3.

**[0021]** In FIGS. 2 and 3, the door 10 comprises an inner cover 20 facing the oven compartment 3 having an opening 21 to show the interior of the oven compartment 3; a transparent window 15 mounted in the opening 21; a supporting member 30 supporting the transparent window 15 to the inner cover 20; and an outer cover 40 outside of the supporting member 30 which forms an outward appearance of the door 10.

**[0022]** The transparent window 15 may be rectangular shaped for being put in a window accommodating part 23 provided in the opening 21 of the inner cover 20, or other various shapes such as a circular, an oval or a polygonal shape according to the shape of the opening of the inner cover. The transparent window 15 may be made of transparent or semitransparent glass which is capable of resisting high-temperature heat generated from the oven compartment 3, or other materials such as plastics.

**[0023]** The inner cover 20 forms an inner part of the door 10 and may be made of a metal plate for resisting high-temperature heat, or other heat-resisting materials such as plastics.

**[0024]** The opening 21 formed in the inner cover 20 is of a rectangular shape. However, the opening 21 may be of various shapes such as a circular or a polygonal shape according to the shape of the transparent window 15. As described above, the window accommodating part 23 is provided in the opening 21.

**[0025]** The window accommodating part 23 shown in FIG. 3 is formed by being bent from the periphery of the opening 21 toward the oven compartment 3 and then toward the center of the opening 21, so that the transparent window 15 can be put in the thus-bent part of the window accommodating part 23. Thus, the window accommodating part 23 may be "L" shaped.

**[0026]** The supporting member 30 comprises a plate part 31 is combined with the inner cover 20 and the outer cover 40, respectively, through engaging means such as screws 35 and 45 and whose middle opening part corresponds to the transparent window 15; a supporter 33 which is bent from the periphery of the opened middle part of the plate part 31 toward the inside of the oven compartment 3 and supports the transparent window 15 by contacting with the periphery of the transparent window 15 put in the window accommodating part 23; and a plurality of bosses 37 which project from the outer surface of the supporting member 30 and through which the screws 35 pass toward the inner cover 20.

**[0027]** The supporter 33 supports the transparent window 15 by contacting with the periphery of the transparent window 15 put in the window accommodating part 23, thereby preventing the transparent window 15 from being detached from the window accommodating part 23. The supporter 33 gives a predetermined pressure to the transparent window 15 against the window accommodating part 23 such that the transparent window 15 may not be broken. The pressure given to the transparent window 15 may be generated when the plate part 31 is combined with the inner cover 20 through the screws 35. Further, the intensity of the pressure can be controlled by controlling the intensity of the engaging force of the screw 35.

**[0028]** The outer cover 40 forms an outward appearance of the door 10 and has an observation window 41 placed corresponding to the transparent window 15. The outer cover 40 is combined with the supporting member 30 by the screws 45. However, the outer cover 40 may be combined with the inner cover 20 by the screws 45. In this case, because the screws 45 are engaged with the inner cover 20 through the bosses 37 of the supporting member 30, the screws 35 are not necessary.

**[0029]** The observation window 41 may be made of transparent materials, so that the inside of the oven compartment 3 can be shown. Further, the observation window 41 may be made of the same material as that of the outer cover 40. Accordingly, the observation window 41 may be made of different material from that of the outer cover 40.

**[0030]** The assembling process of the door 10 according to the present invention is described as follows: First, the transparent window 15 of the inner cover 20 is put into the window accommodating part 23. Then, the supporting member 30 is combined with the inner cover 20, so that the transparent window 15 can be adhered to the window accommodating part 23 with the supporter 33 of the supporting member 30 being contacted with the periphery of the transparent window 15. Thereafter, the outer cover 40 is combined with the supporting member 30 so that the observation window 41 is placed corresponding to the transparent window 15.

**[0031]** Heat-resisting elastic materials (not shown) may be provided between the window accommodating part 23 and the transparent window 15; and between the supporter 33 and the transparent window 15.

**[0032]** These heat-resisting elastic materials may be made of rubber or other material which is capable of resisting high-temperature heat generated from the oven compartment 3.

[0033] The transparent window 15 given pressure by the supporter 33 can be prevented from being broken by means of the heat-resisting elastic materials provided between the window accommodating part 23 and the transparent window 15 and between the supporter 33 and the transparent window 15. Further, the leakage of heat generated from the oven compartment 3 can be prevented, by being sealed between the transparent window 15 and the opening 21 of the inner cover 20 by means of the heat-resisting elastic materials.

[0034] As described above, according to the present invention, the door is connected with the main body to open and close the oven compartment and comprises the inner cover which is provided facing the oven compartment and formed with the opening to show the oven compartment therethrough; the transparent window provided in the opening of the inner cover; and the supporting member supporting the transparent window against the inner cover. Further, the window accommodating part is extended from the periphery of the opening for putting the transparent window therein.

[0035] As described above, a fixing means such as a jig and liquid sealant used for attaching a transparent window to the door of a conventional oven are not necessary in the oven according to the present invention. Thus, assembling the oven can be simplified, thereby enhancing productivity.

[0036] Although a few embodiments of the present invention have been shown and described, it will be appreciated by those skilled in the art that changes may be made in these embodiments without departing from the principles and spirit of the invention, the scope of which is defined in the claims and their equivalents.